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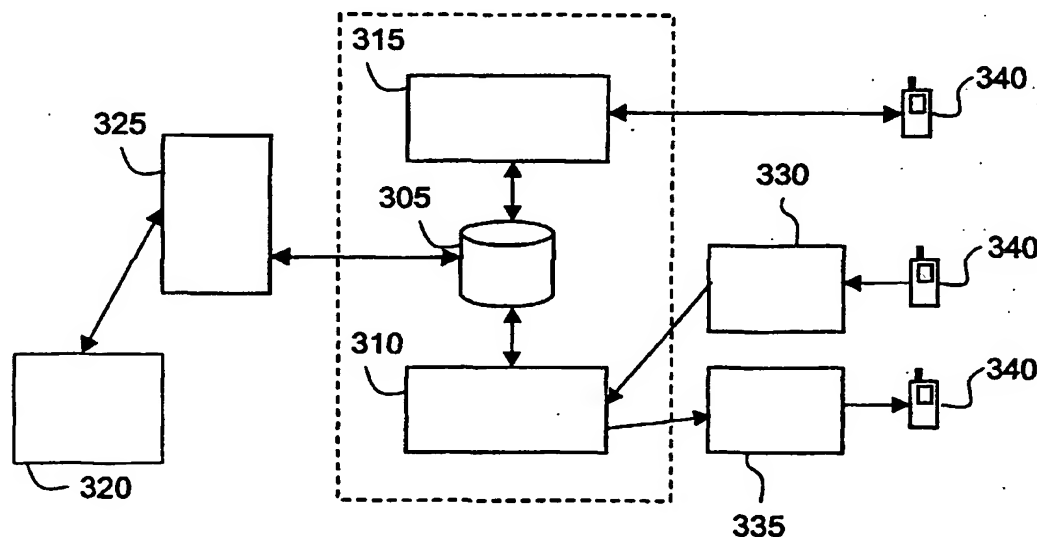
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(54) Title: **METHOD AND SYSTEM FOR ASSISTING MOBILE TELECOMMUNICATION TERMINAL USERS**



(57) Abstract: A method, and a corresponding system, for assisting mobile telecommunication terminal users to establish contact are disclosed. According to the method profiles of mobile telecommunication terminal users are stored and the mobile telecommunication terminal users are linked to particular mobile telecommunication terminals. Furthermore, relative distances between the mobile telecommunication terminals are determined and different mobile telecommunication terminal users are matched with each other based on the profiles of the mobile telecommunication terminal users and the relative distances between the mobile telecommunication terminals to which the mobile telecommunication terminal users are linked. Finally, the mobile telecommunication terminal users for which a match has been made are alerted of the match.

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METHOD AND SYSTEM FOR ASSISTING MOBILE TELECOMMUNICATION
TERMINAL USERS

Field of the invention

The present invention generally relates to telecommunications, and specifically to a method, and a corresponding system, for assisting mobile
5 telecommunication terminal users to establish contact.

Background of the invention

In mobile telecommunications there are means for different mobile telecommunication terminal users to
10 communicate with each other. In order to communicate with another mobile telecommunication terminal user, a mobile telecommunication terminal user needs to establish a mobile telecommunication channel over which the communication can be performed. In known systems for
15 mobile telecommunication, such as GSM, TDMA, CDMA, etc. these telecommunication channels are initiated by one mobile telecommunication terminal user by dialling the mobile telephone number of another mobile telecommunication terminal user. Thus, for a mobile
20 telecommunication terminal user to be able to communicate with another mobile telecommunication terminal user he or she needs to know the mobile telephone number of the other mobile telecommunication terminal user. This is a problem when a mobile telecommunication terminal user
25 wants to get in contact with someone that he or she does not know the mobile phone number of. This situation may arise in several different situations, such as when a mobile telecommunication terminal user wants to get in contact with someone who is located within some distance
30 from him or her and who has some particular physical attributes, personality traits, interests etc. and whose telephone number he or she does not know. Examples of personality traits could be a skill that mobile

telecommunication terminal user is in need of, such a doctor, mechanic etc.

Summary of the Invention

5 An objective of the present invention is to alleviate the above-mentioned problem of known mobile telecommunication systems, where a mobile telecommunication terminal user is not able to establish telecommunication channels from his or her mobile
10 telecommunication terminal to another user's mobile telecommunication terminal unless he or she knows the mobile telephone number of the other user's mobile telecommunication terminal.

 The invention is based on the recognition that
15 sometimes a first mobile telecommunication terminal user does not want to get in contact with specific second mobile telecommunication terminal user, but with a second mobile telecommunication terminal user that has a specific profile and that is located within a specific
20 distance from the first mobile telecommunication terminal user. This is done by combining elements in known mobile communication systems inventively in combination with a matching system that is operatively connected to these known elements.

25 According to one aspect of the invention a method for assisting mobile telecommunication terminal users to establish contact is provided. According to the method profiles of mobile telecommunication terminal users are stored in a database and the mobile telecommunication
30 terminal users are linked to particular mobile telecommunication terminals. Furthermore the relative distances between the mobile telecommunication terminals are determined and different mobile telecommunication terminal users are matched with each other, based on the
35 profiles of the mobile telecommunication terminal users and the relative distances between the mobile telecommunication terminals to which the mobile

telecommunication terminal users are linked. If a match is made the matching mobile telecommunication terminal users are alerted.

Thus, according to the method a mobile
5 telecommunication terminal user is alerted when someone who has some particular physical attributes, personality traits, interests etc that he or she is looking for is located within a certain distance from him or her. If, for example, a mobile telecommunication terminal user is
10 in need of someone with special personality traits, such as a mechanic, he or she will be alerted if there is a mechanic within a certain distance. Furthermore, since each mobile telecommunication terminal user is linked to a mobile telecommunication terminal there is enough
15 information to establish a connection between matching mobile telecommunication users.

According to one embodiment of a method according to the invention a request for further information about a mobile telecommunication terminal user with a matching
20 profile from an alerted mobile telecommunication terminal user is received. After receiving this request, instructions of how to proceed are sent to the alerted mobile telecommunication terminal user.

According to another embodiment of a method
25 according to the invention the establishment of a connection between a pair of mobile telecommunication terminal users with matching profiles is enabled. This is done by sending the mobile telecommunication terminal number of one mobile telecommunication terminal users of
30 the pair of mobile telecommunication terminal users to the other mobile telecommunication terminal user of said pair of mobile telecommunication terminal users. An advantage of this embodiment is thus that a mobile telecommunication terminal user does not have to know the
35 mobile telephone number, or any other identification information, in advance of the mobile telecommunication terminal users that have the profile he or she is looking

for in order to get in contact with these mobile telecommunication terminal users.

According to another aspect of the invention a system for assisting mobile telecommunication terminal users to establish contact is provided. The Mobile Match system keeps track of profiles and their relative geographical positions, and alerts profile owners when two or more owners of matching profiles are within a given distance. A profile is defined as an information data set belonging to an individual or object. The profile could consist of data related to physical attributes, personality traits, interests, or current situation. Each profile is linked to a mobile device with a unique identification number such as a mobile phone number. Mobile Match uses relative geographical positioning between two or more devices, as opposed to absolute positioning where the true longitude and latitude of a device is identified. Alerted profile owners are given the option to contact or receive further information about matching profiles. A profile owner can choose to reveal its true identity or to stay anonymous.

By using relative distances, systematic errors of absolute positions will not affect the performance of the system and the method according to the invention. If, for example, the mobile telecommunication terminals of two mobile telecommunication terminal users are connected to the same mobile base station and data regarding the absolute position of this mobile station is erroneous, this will not affect the determined relative distance between the two mobile telecommunication terminal users. This is due to the fact that the error will be equal for both of the mobile telecommunication terminal users.

Brief Description of the Drawings

The invention will now be further elucidated by way of exemplary embodiments described hereinafter with reference to the accompanying drawings, in which:

figure 1 is an elevational view of exemplary positions of mobile telecommunication terminal users whose profiles are stored in a system according to the invention;

5 figure 2 is a flowchart of an embodiment of the method according to the invention; and

figure 3 is a schematic diagram of an embodiment of a system according to the invention.

10 Detailed Description of Preferred Embodiments

In figure 1, an elevational view of exemplary positions of mobile telecommunication terminal users A-I whose profiles are stored in a system according to the invention, is shown. Furthermore, the positions of the
15 users are indicated in relation to a map of the surroundings of the users, in this case an urban area with streets indicated by the grid mesh 110. The user A wants to get in contact with other users whose profiles matches his or her profile. Furthermore, the user A only
20 wants to get in contact with those users who are within a certain distance from him or her, indicated by the circle around the user A.

In figure 2, a flowchart of an embodiment of the method according to the invention is shown. In step 210
25 profiles of mobile telecommunication terminal users are stored in a profile database. The profile may include information regarding physical attributes, personality traits, interests or current situation etc. The personality traits could for example be some skills that
30 mobile telecommunication terminal user is in need of, such a doctor, mechanic etc. In step 215 the mobile telecommunication terminal users are linked to particular mobile telecommunication terminals. Then, the relative distances between the telecommunication terminals are
35 determined in step 220. This is done by sending a request for position data of the mobile telecommunication terminals to a mobile positioning centre (MPC). The

position data are then received and the relative distances between the mobile terminals are determined from this position data. The telecommunication terminal users are then matched with each other, based on their profiles and relative distances. Let us say that the mobile telecommunication terminal user A in figure 1 has a profile that indicates that he or she is in need of a mechanic that is located within the distance indicated by the circle around the user A and that the profiles of the mobile telecommunication terminal users D, F and K indicate that they are car mechanics. In this case there would be a match between the mobile telecommunication terminal user A and the mobile telecommunication terminal user D since the mobile communication terminal users F and K are not located within the circle. Note that the determination of the relative distances may be done after profiles have been matched as well. In this case mobile communication terminal users whose profiles match are found first and then the relative distance between these profile is determined in order to determine whether the mobile telecommunication terminals are within the distance that is the second requirement of a match. When a match has been made the matching mobile telecommunication terminal users are alerted of this match in step 230. Finally, in step 235, the establishment of a connection between matching telecommunication terminal users is enabled. An mobile telecommunication terminal users that has been alerted of a match may then contact a interactive voice response system in order to get more information of the matching profiles and/or receive instruction of how to proceed. The alerted mobile telecommunication terminal users may then reveal his or her true identity, e.g. by revealing his or mobile telephone number to a matching telecommunication terminal user. Furthermore, if one of the matching telecommunication terminal user has already reveal his or her mobile telephone number the alerted

mobile telecommunication terminal user can establish a connection to this matching telecommunication terminal user by dialling his or her mobile telephone number.

In figure 3, a schematic diagram of an embodiment of a system according to the invention, is shown. The core system components are a profile database 305, a Matchmaker application 310, and an interactive voice response centre 315 (IVRC). The profile database 305 contains information about profile owners and their corresponding data sets. The Matchmaker 310 tracks the relative position of active profiles and alerts profile owners when a match is made. The IVRC 315 receives incoming calls from alerted profile owners that wish to get further information about matching profiles and instructions on how to proceed. Supporting system components are a web-based user interface 320 (browser), a publishing server 325 (e.g. web and wap), a mobile positioning centre 330 (MPC), mobile messaging centre 335 (SMSC), and mobile phones 340 or other mobile communication devices. The web-based user interface 320 is an interactive user interface used to enter and manage profiles. The publishing server 325 is used to publish profiles and tracking status. The MPC 330 receives instructions from the Matchmaker 310 on which mobile phone numbers that should be positioned and returns the positioning data to the Matchmaker 310. The mobile phone messaging centre 335 connects the Matchmaker with mobile phones 340. Alerts are generated by the Matchmaker 310 and are sent out by the SMSC 335. The mobile phone system, or the mobile phone handset itself, generates the positioning data. Mobile phones 340 also used to alert profile owners and for profile owners to contact the IVRC 315

The profile database 305 includes the profiles of profile owners, i.e. mobile telecommunication terminal users. Each mobile telecommunication terminal user is logically linked to his or her mobile telecommunication

terminal, such as a mobile telephone. The mobile telecommunication terminal is identified by a unique ID, such as its mobile telephone number. The matchmaker application 310 includes relative distance determining means for sending a request to the MPC 330 for position data of a number of mobile telecommunication terminals, means for receiving said position data from the MPC 330, and relative distance determining means for determining the relative distance between the number of mobile telecommunication terminals from said position data. The matchmaker application 310 also includes means for matching different mobile telecommunication terminal users with each other. The matching is based on the profiles of the mobile telecommunication terminal users and the relative distance between the mobile telecommunication terminals to which said mobile telecommunication terminal users are linked. Furthermore the matchmaker application 310 generates an alert if there is a match and the alert is sent via the SMSC 335 to the matching mobile telecommunication terminal users. The IVRC 315 is arranged to receive a request for further information about a mobile telecommunication terminal user with a matching profile from an alerted mobile telecommunication terminal user, and to send instructions to the alerted mobile telecommunication terminal user of how to proceed.

CLAIMS

1. A method characterised by the following combination:

5 relative geographical positioning using mobile phone networks or mobile handsets;

linking of an information data set (profile) to a particular mobile device using the unique identification of the mobile device, such as a mobile phone number;

10 linking of an information data set to a profile owner, such as a physical object or person;

identification of matching profiles using information data sets and information about profile owners' relative geographical positions; and

15 notification of a match to a profile owner using mobile phones or other mobile communication devices.

2. A system characterised by the following combination:

20 means for relative geographical positioning using mobile phone networks or mobile handsets;

means for linking of an information data set (profile) to a particular mobile device using the unique identification of the mobile device, such as a mobile
25 phone number;

means for linking of an information data set to a profile owner, such as a physical object or person;

means for identification of matching profiles using information data sets and information about profile
30 owners' relative geographical positions; and

means for notification of a match to a profile owner using mobile phones or other mobile communication devices.

35 3. A system for assisting mobile telecommunication terminal users to establish contact, comprising:

storage means for storing profiles of mobile telecommunication terminal users;

means for linking mobile telecommunication terminals to particular mobile telecommunication terminal users;

5 relative distance determining means for determining relative distances between mobile telecommunication terminals;

means for matching different mobile telecommunication terminal users with each other based on the profiles of said mobile telecommunication terminal users and the relative distances between the mobile telecommunication terminals to which said mobile telecommunication terminal users are linked; and

15 means for alerting the mobile telecommunication terminal users for which a match has been made.

4. The system according to claim 3, further comprising:

means for sending a request to a mobile positioning centre for position data of a number of mobile telecommunication terminals; and

means for receiving, from said mobile positioning centre, said position data of said number of mobile telecommunication terminals, and

25 wherein said relative distance determining means are arranged to determine relative distance between said number of mobile telecommunication terminals from said position data.

30 5. The system according to claim 3, further comprising:

means for receiving position data from a number of mobile telecommunication terminals, and

35 wherein said relative distance determining means are arranged to determine the relative distance between said number of mobile telecommunication terminals from said position data.

6. The system according to any one of claim 3-5, wherein said matching means are arranged to identify pairs of mobile telecommunication terminal users for which the profile of one of each pair of mobile telecommunication terminal users is a profile that the other of the pair of mobile telecommunication terminal users is looking for, and to determine for each of said pairs of mobile telecommunication terminal users, if the relative distance between the pair of mobile terminals that are linked to the pair of mobile telecommunication terminal users is less than a predetermined distance, that there is a match.

7. The system according to any one of claim 3-6, further comprising:

means for receiving a request for further information about a mobile telecommunication terminal user with a matching profile from an alerted mobile telecommunication terminal user; and

means for sending instructions to said alerted mobile telecommunication terminal user of how to proceed.

8. The system according to any one of claim 7, wherein said means for sending instructions are arranged to send the mobile telecommunication terminal number of one mobile telecommunication terminal users of said pair of mobile telecommunication terminal users to the other mobile telecommunication terminal user of said pair of mobile telecommunication terminal users.

9. A method for assisting mobile telecommunication terminal users to establish contact, comprising the steps of:

storing profiles of mobile telecommunication terminal users;

linking said mobile telecommunication terminal users to particular mobile telecommunication terminals;

determining relative distances between said mobile telecommunication terminals;

5 matching different mobile telecommunication terminal users with each other based on the profiles of said mobile telecommunication terminal users and the relative distances between the mobile telecommunication terminals to which said mobile telecommunication terminal users are
10 linked; and

 alerting the mobile telecommunication terminal users for which a match has been made.

10. The method according to claim 9, wherein the
15 step of determining comprises the steps of:

 sending a request to a mobile positioning centre for position data of a number of mobile telecommunication terminals;

 receiving, from said mobile positioning centre, said
20 position data of said number of mobile telecommunication terminals; and

 determining the relative distance between said number of mobile telecommunication terminals from said position data.

25

11. The method according to claim 9, wherein the step of determining comprises the steps of:

 receiving position data from a number of mobile telecommunication terminals; and

30 determining the relative distance between said number of mobile telecommunication terminals from said position data.

12. The method according to any one of claim 9-11,
35 wherein the step of matching comprises the steps of:

 identifying pairs of mobile telecommunication terminal users for which the profile of one of each pair

of mobile telecommunication terminal users is a profile that the other of the pair of mobile telecommunication terminal users is looking for; and

determining for each of said pairs of mobile telecommunication terminal users, if the relative distance between the pair of mobile terminals that are linked to the pair of mobile telecommunication terminal users is less than a predetermined distance, that there is a match.

13. The method according to any one of claim 9-12, further comprising the steps of:

receiving a request for further information about a mobile telecommunication terminal user with a matching profile from an alerted mobile telecommunication terminal user; and

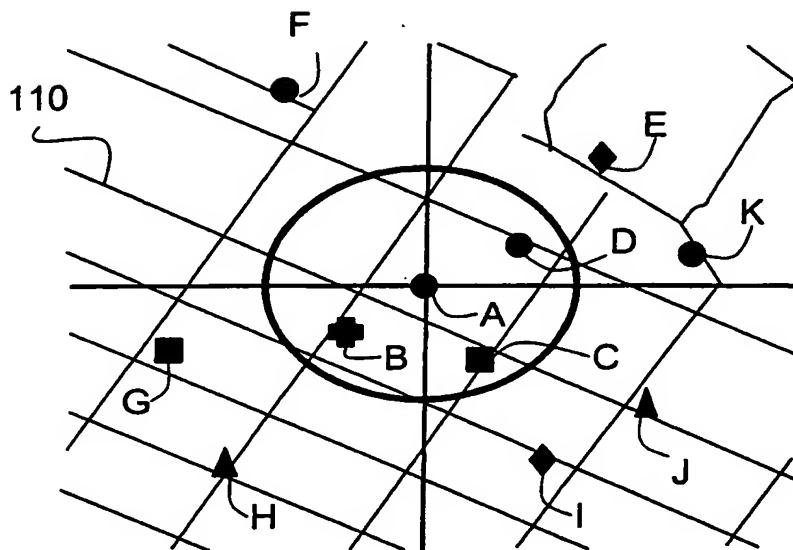
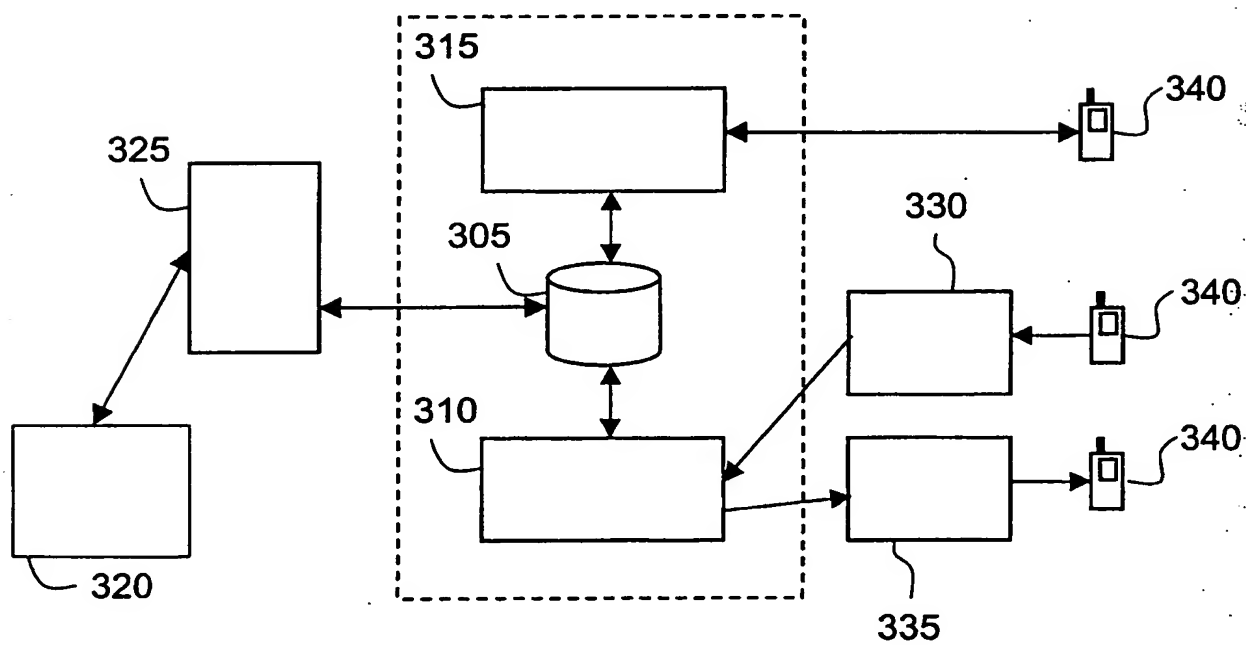
sending instructions to said alerted mobile telecommunication terminal user of how to proceed.

14. The method according to any one of claim 9-13, further comprising the step of:

enabling the establishment of a connection between a pair of mobile telecommunication terminal users with matching profiles by sending the mobile telecommunication terminal number of one mobile telecommunication terminal users of said pair of mobile telecommunication terminal users to the other mobile telecommunication terminal user of said pair of mobile telecommunication terminal users.

15. A computer program comprising computer-executable instructions for performing the steps recited in any of the claims 9-14.

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**Figure 1****Figure 3**

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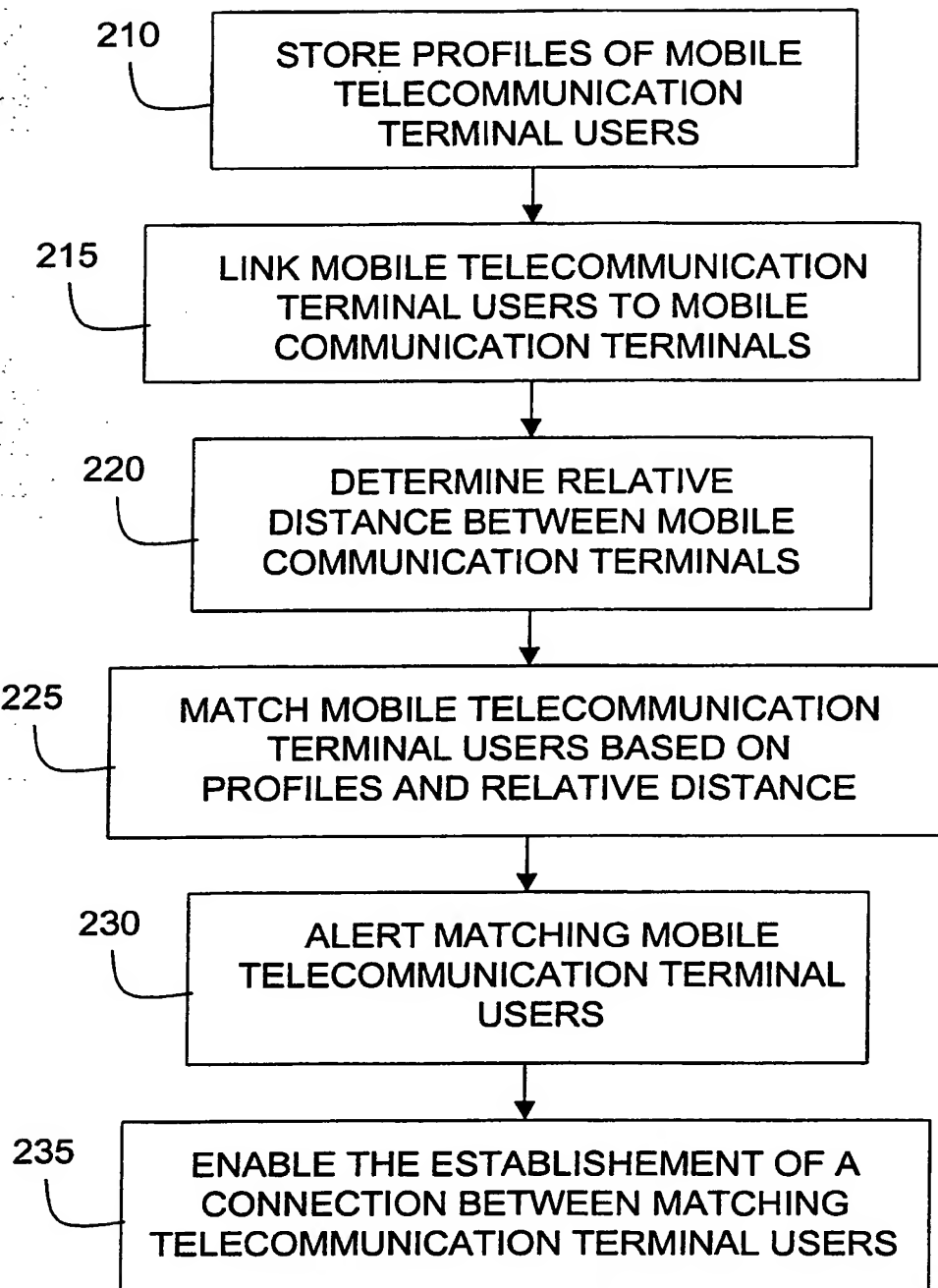


Figure 2

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE 00/01886

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: H04Q 7/38

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 9827778 A2 (TELEFONAKTIEBOLAGET LM ERICSSON (PUBL)), 25 June 1998 (25.06.98), page 3, line 7 - page 7, line 14 --	1,2
A	US 5898680 A (JOHNSTONE, ET AL), 27 April 1999 (27.04.99), abstract --	1-15
A	US 5583917 A (JONSSON), 10 December 1996 (10.12.96), abstract -- -----	1-15



Further documents are listed in the continuation of Box C.



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INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report			Publication date	Patent family member(s)		Publication date
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